

Operational Manual

LMB

Loudness Management Batch Processor

V1.6

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1. Introduction

The NUGEN Audio LMB system is an off-line file based loudness analysis and correction program designed for rapid assessment and correction of files for loudness and true peak content to ITU-R BS. 1770/1, ITU-R BS. 1770 and EBU R128 based specifications.

LMB is capable of producing detailed post-mortem logs and includes an in-built graphing facility. With a drag and drop interface and/or specific watched folders, LMB automatically handles the process of checking and conforming files to multiple broadcast criteria.

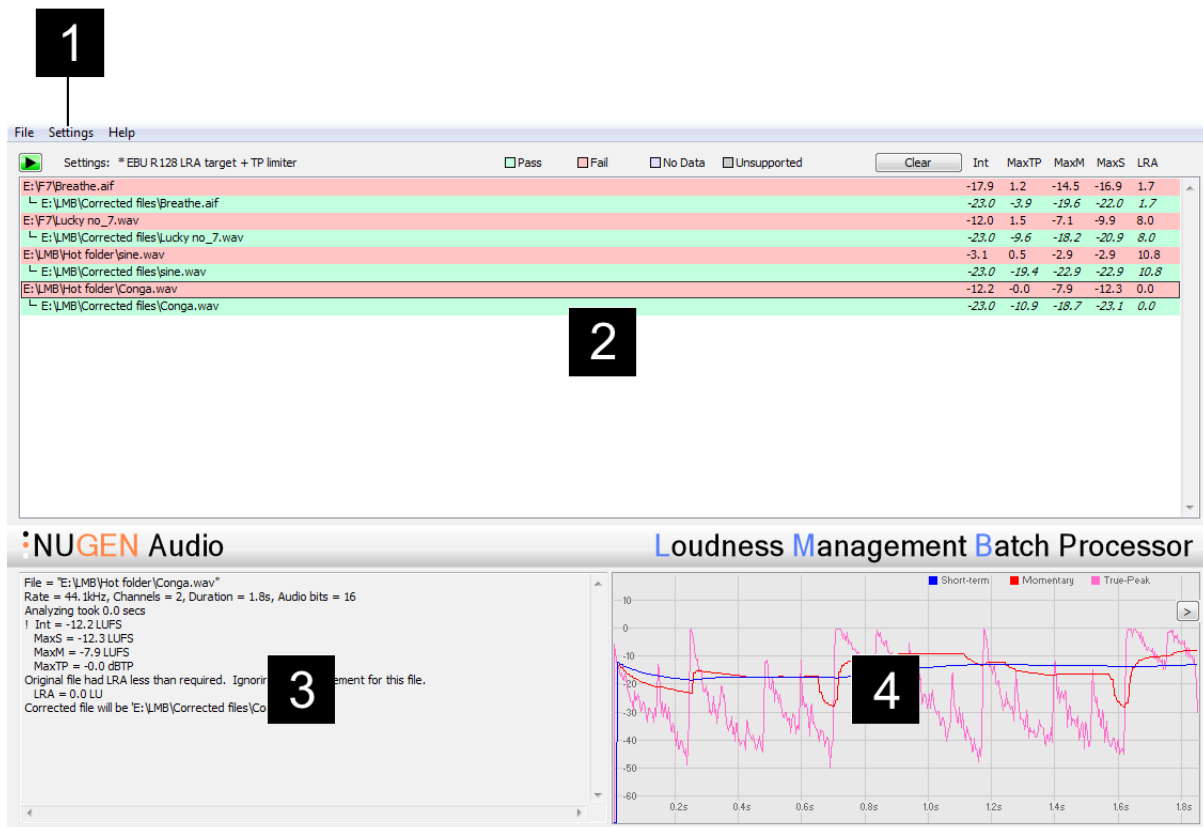
It is also possible to fully integrate LMB into an automated system using the optional command-line interface and XML file output logs.

2. Interface

2.1 General Layout

The interface is designed to facilitate intuitive operation by following a logical flow from top to bottom, left to right, grouping similar aspects of operation into distinct zones as shown below.

The interface can be resized using the standard corner drag and maximise/restore functions.



1. Drop-down menus

File

Load Settings...

Loads overall LMB settings files *.lmb

Save

Saves current settings.

Save As...

Save current settings as *.lmb

Add to queue

Browse for files to add to the queue.
Hold down ctrl or shift to add more than one file.

Settings

Edit settings...

Opens the LMB settings dialogue box.

Help

Manual

Opens the LMB manual (pdf).

Visit website

Opens the NUGEN Audio LMB web page.

About

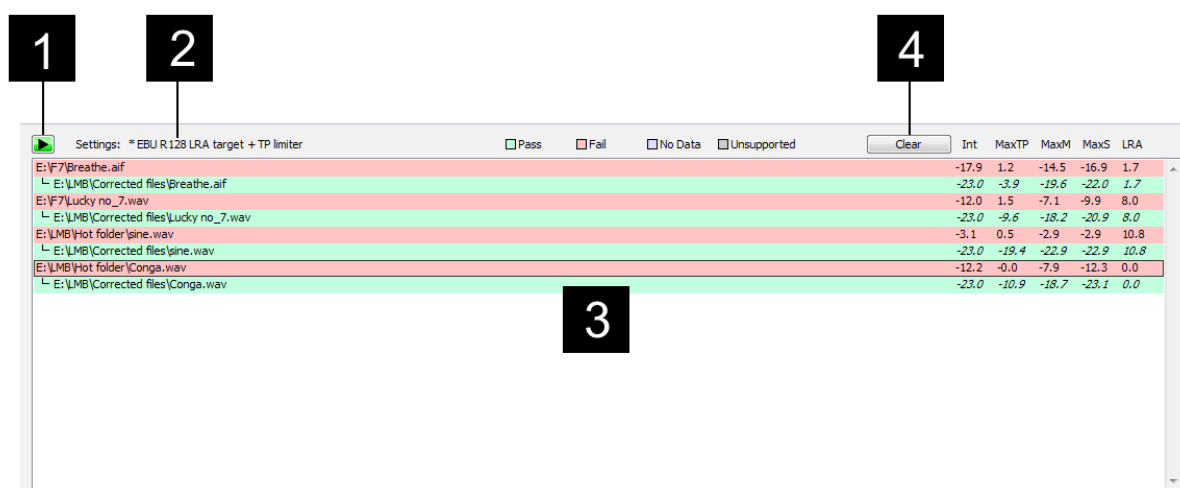
Opens the credits and version dialog box.

2. **Processing queue.** This area shows the files queued for processing, and previously processed in this session, in tabulated summary, with results of analysis and any correction applied.
3. **Analysis output window.** Clicking any file in the processing queue will generate a detailed summary of any analysis and correction associated with the current session.
4. **Output graph.** The graph area provides a thumbnail overview of Short-term, Momentary loudness and True-peak over time. The three traces can be toggled on and off by clicking the title in the key.

The arrow button in the right hand corner can be used to open a second, large-scale, resizable graph view.

2.2 Processing Queue

This area of the interface gives an overview of the files to be analysed and/or corrected, along with the name of the last settings file loaded/saved and a summary of the loudness any loudness data generated.



1. **Process Start|Pause.** The control governs whether LMB is active or paused.
If Auto-pause is active (see Settings), when first opened, LMB is paused. Additionally, if changes are made to the specifications settings, LMB will enter pause mode. Click the control to activate processing.
If Auto-pause is in-active, LMB will respect the last setting of the control and await user up-date.
2. **Current settings area.** If a setting file has been loaded/saved, the name of this file is shown here.
3. **File data window.** Drag and drop files here to add to the analysis/correction queue. The key at the top shows the various possible conditions for a file by colour. Once data is generated, it is tabulated in summary in columns to the right hand side of the window. Corrected files are shown below the original file.
Files may also be added to the queue using the 'Add to queue' option in the File drop-down menu, or added automatically using the watched folder option in the settings dialogue. Options are also available here to adjust the results column display.
4. **Clear.** Clears the queue, removing all analysis data and files. If a watched folder is active, the queue will be re-populated with any files present.

2.3 Analysis Output

Clicking any analysed file in the file overview window will call up the analysis details for that file in the analysis output window, showing file location, format, current loudness statistics and process time.

```
File = "E:\F7\Rythm Prince.wav"
Rate = 44.1kHz, Channels = 2, Duration = 139.1 secs, Audio bits = 16
Analyzing took 2.6 secs
! Int = -14.4 LUFS
  MaxS = -10.4 LUFS
! MaxTP = 1.1 dBFS
  MaxM = -7.3 LUFS
```

When looking at an original file analysis, values that fail the specification criteria are marked with an '!'.

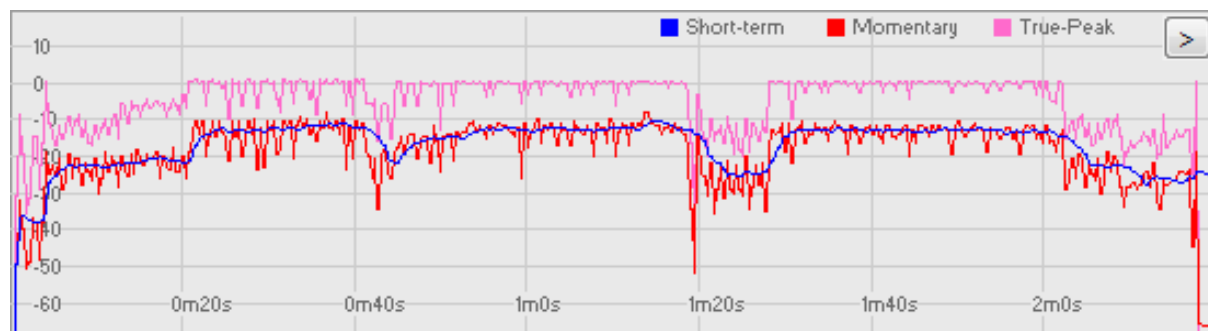
When looking at the statistics for a corrected file, if there are conflicts within the target loudness criteria (eg. Meeting the integrated loudness value causes the MaxS value to remain too high), these conflicts will be marked '!'.

A critical file failure parameter will be marked '!!!'. A corrected file will then not be produced and the file will be marked 'CANNOT CORRECT' in the file overview window. For the file to pass the specifications, the original audio will need some form of compression/limiting.

2.4 Output Log Graph

The graph area provides a thumbnail overview of Short-term, Momentary loudness and True-peak over time. The three traces can be toggled on and off by clicking the title in the key.

The arrow button in the right hand corner will open a second, large- scale graph view. From the large scale-view it is possible to toggle between original and corrected file traces (if a corrected file exists) using the '<->' button. Graphical traces can also be printed via the system printer using the 'Print' button.



2.5 Settings

The settings dialogue box (Settings drop down menu, Edit settings...) controls the fundamental behaviour of LMB. These settings can then be saved and loaded as individual *.lmb files to enable rapid configuration of different parameter sets.

The available settings will vary depending upon which additional licenses you have purchased.

2.5.1 Algorithm

The screenshot shows the 'NUGEN Audio LMB - Settings' dialog box with the 'Algorithm' tab selected. The dialog is divided into several sections: 'Specifications', 'Dynamics Adaptation', and 'Processing'. The 'Specifications' section contains a table with columns for 'Display' and 'Specification'. The 'Dynamics Adaptation' section contains a table with columns for 'Specification' and a value field. The 'Processing' section contains checkboxes for 'Auto-correct' and 'Verify', and a 'Loudness' section with a table for 'Algorithm' and 'Limiter'. The 'Dynamics Adaptation' section also has a 'Dynamics Adaptation' section with a radio button for 'DynApt™' and a dropdown for 'TV'. At the bottom are buttons for 'Cancel', 'Reset to Defaults', 'Apply', and 'Apply and Close'.

Display	Specification	Value	Unit
☐	Ignore Head (secs)	3.0	
☒	Integrated Loudness (Int)	-23.0	+/- 0.0
☐	Allow under		
☒	Allow correct up		
☒	Max True-Peak (TP)	-2.0	
☒	Max Momentary Loudness (MaxM)	-16.0	
☒	Max Short-term Loudness (MaxS)	-18.0	

Specification	Value
☒ Max LRA	15.0
☐ Max Dialog Below Int*	5.0
☐ Max Momentary Above Int*	12.0
☐ Max Short-term Above Int*	8.0

Algorithm	Value	Settings
EBU R128		Settings
☒ Limiter	Transparent	Settings

Dynamics Adaptation	Value	Settings
☒ DynApt™	TV	Settings
☐ Compressor		

1. **Display options.** The left column of tick-boxes allows you to choose which items are displayed in the analysis summary of the process queue. Note that only LRA is available from the Dynamics Adaptation section unless you have a DynApt™ license and DynApt™ processing is turned on.
2. **Specifications.** The specification options allow you to choose which criteria you wish to test for. If these tick-boxes are ticked, then incoming audio is compared against the corresponding values and will pass or fail as appropriate.
 - (a) **Ignore Head.** Use this parameter to cause LMB to ignore the front section of audio in a given file. This is useful where test and alignment tones are present,

which should not be included in the loudness measurement. This section of the file is also left out of any file processing adjustments made.

- (b) **Integrated Loudness.** Files will be assessed and or corrected to the defined value. In some situations, it can be possible for a file to fail to comply with a single target value, as other requirements require gain reduction that reduces the integrated loudness below the target. In these situations, LMB will indicate that this condition has not been met.
 - i. **Tolerance.** The +/- parameter allows a tolerance to be applied, passing audio within the tolerance range.
 - ii. **Allow Under.** The Allow under option will allow the integrated value to be reduced in order to meet potential conflicts arising from the need to meet the max parameters settings below if selected.
 - iii. **Allow Correct Up.** Allow correct up will raise the level of audio with integrated loudness outside the integrated loudness value.
 - (c) **Max True-Peak.** Sets the target value for maximum True-Peak level. Overall file level will be reduced to ensure this target value is not exceeded. As extremely short sections of audio can cause the reduction in level of the entire file a back-stop peak-limiter option is available as an alternative method of preventing Max True-Peak being exceeded.
 - (d) **Max Momentary Loudness.** Sets the target value for MaxM. Overall file level will be reduced to ensure this target value is not exceeded.
 - (e) **Max Short-term Loudness.** Sets the target value for MaxS. Overall file level will be reduced to ensure this target value is not exceeded
 - (f) **Max LRA.** This function sets the maximum allowable LRA (Loudness Range) value for the file. Depending on the Dynamics Adaptation settings (see below) the file will either be compressed using a look-ahead compressor or the DynApt™ algorithm to reduce the LRA value to target. As this can become an iterative process when used in conjunction with a number of other target criteria, the Allow under by option can be used to accept an LRA below the target value. Note that the allow under is only shown if the compressor is used as it is not required when using DynApt™ .
 - (g) **Max Dialog Below Int.** Only available when using DynApt™ . This is a measure of the difference between the integrated loudness of the whole file compared with the integrated loudness of the sections containing dialog. This will be reduced to make sure that the target level is not exceeded.
 - (h) **Max Momentary Above Int.** Only available when using DynApt™ . This is a measure of the difference between the momentary peak and the integrated loudness. It will be reduced to make sure that the target level is not exceeded.
 - (i) **Max Short-term Above Int.** Only available when using DynApt™ . This is a measure of the difference between the short-term peak and the integrated loudness. It will be reduced to make sure that the target level is not exceeded.
- 3. **Auto-correct** Check this option to auto-correct the files to the specifications into the 'Correct into folder' which is specified on the 'File Handling' tab.
 - 4. **Verify** Checks the corrected file for conformity. This requires another scan, creating the possibility for an iterative process to exactly meet all requirements.
 - 5. **Algorithm** In this area the fundamental analysis algorithm is selected, governing all loudness calculations made by this instance of LMB. LMB is capable of performing calculations compliant with ITU-R BS. 1770/1, ITU-R BS. 1770-02, EBU R128 (2010)*, EBU R128 (EBU mode) & Dialog Gate. Current loudness standards are based around these algorithms eg. ATSC A/85, ARIB TR-B32, AGCOM 219/9/CSP etc. although many delivery specifications simply refer to the algorithm directly.

*The EBU R128 (2010) algorithm is a legacy setting. This uses the G8 gating system superseded by the G10 gate in the current EBU R128 algorithm.

6. **Algorithm Settings** Currently the only additional setting that can be selected is the period over which the short-term loudness is calculated. Changing this value from its default of 3 seconds is denoted in the main window by the display of an asterisk after the name.
7. **Limiter** With this option turned on, a look-ahead True Peak limiter is applied to the audio to make sure that the specified MaxTP is not exceeded. If this option is turned off, but the MaxTP criterion is still set then the incoming audio will be gain-adjusted to make sure that peak-overs do not occur.

8. Limiter Settings

- (a) **Look Ahead.** This is the number of samples to look ahead for peak-overs. The larger this value is, the smoother gain adjustments prior to a peak-over will be.
- (b) **Release** This is the time in milliseconds over which the gain adjustment is released. The larger this value is, the smoother gain adjustments after a peak-over will be.

9. **Dynamics Adaptation** In this section you can choose between two options. Note that the DynApt™ option is only available if you have purchased and installed a valid license for the DynApt™ add-on.

Note that if you turn DynApt™ on, it will disable the MaxM and MaxS settings in the Loudness section. To limit the MaxM and MaxS values, you should use the settings in the Dynamics Adaptation section instead.

- (a) **DynApt™** DynApt™ is a proprietary algorithm which analyses the loudness levels throughout a piece of audio and then carefully reduces the loudness range of the audio, according to several measures, while preserving the short-term dynamics and “space” in the audio, and ensuring the dialog level results in good intelligibility. The end result is audio that has been re-purposed for different play-out contexts, while doing minimal damage to the original sound and feel of the audio. Example uses are re-purposing cinema sound-tracks for TV broadcast, or re-purposing radio broadcast programming for podcast.
 - (b) **Compressor** This option uses LMB’s built-in compressor to reduce the LRA to the desired level.
10. **DynApt™ Presets** Use this option to select the target audience for the DynApt™ algorithm. To customise the settings, click on the settings button to the right.
 11. **DynApt™ Settings** Here you can set the specific settings used by the DynApt™ algorithm.
 - (a) **Loudness Compression Ratio** When DynApt™ reduces MMAI and MSAI the Loudness Compression Ratio controls how hard or soft the compression will be, with 1.0 being very hard and 0.3 being very soft.
 - (b) **Macro Transition Threshold** DynApt™ respects the transitions in the original audio. The Macro Transition Threshold controls the detection of transitions. A lower number will detect more transitions.
 - (c) **Time Smoothing (secs)** DynApt™ processing is generally applied in a time-smoothed way. The parameter Time Smoothing controls how many seconds the processing is smoothed over.
 - (d) **Ignore Transitions Relative to Integrated** DynApt™ will ignore transitions it detects if the loudness levels on both sides of the transition are sufficiently low. This level is controlled by the Ignore Transitional Relative to Integrated parameter.

2.5.2 File Handling

The screenshot shows the 'NUGEN Audio LMB - Settings' dialog box with the 'File Handling' tab selected. The dialog has five tabs: Algorithm, File Handling, Reporting, Utility, and Enterprise. The 'Files and Folders' section contains three checkboxes: 'Watched Folder', 'Auto-del from watched', and 'Preserve Sub-Folders'. Below these are five text boxes for folder paths, each with a browse button (...): 'Watched Folder' (\\Documents\\NUGEN Audio\\LMB\\Watched), 'Temp Folder' (\\Documents\\NUGEN Audio\\LMB\\Temp), 'Correct Into Folder' (\\Documents\\NUGEN Audio\\LMB\\Corrected), 'Log File Folder' (\\Documents\\NUGEN Audio\\LMB\\Logs), and 'Detailed Log Folder' (\\Documents\\NUGEN Audio\\LMB\\Logs\\Detail). The 'Multi-Channel File Handling' section includes a text box for 'Corrected files suffix', a dropdown for 'Multi-channel Routing' (set to 'ITU: L,R,C,LFE,Ls,Rs'), a checked checkbox for 'De-interleaved channels' with a dropdown set to '.L,.R,.C,.LFE,.Ls,.Rs', a dropdown for '8 Channel Layout' (set to '2+6'), and a dropdown for '8 Channel Processing' (set to 'Stereo + 5.1'). The 'MXF File Handling' section has three checkboxes: 'Process unsupported files as WAV' (checked), 'Update Metadata', and 'Enable AS-11 UK DPP checks'. A 'Settings' button is next to the last checkbox. At the bottom are 'Cancel', 'Reset to Defaults', 'Apply', and 'Apply and Close' buttons.

1. **Files and Folders** This section allows you to specify folders used for various actions. You can type in the path directly or click on the button to the right to browse to the desired path.
 - (a) **Watched Folder.** In addition to the drag and drop method, files can also be added to the queue using the watched folder option for fully automated processing.
 - (b) **Auto-del from watched.** With this tick-box ticked, any items successfully processed from the watch folder will be deleted once processing is complete. This option is only available if parsing of a watch folder is turned on, and auto-correction is also turned on.
 - (c) **Preserve Sub-Folders.** With correction turned on, dragging an entire directory into the watch folder can result in the processed files ending up in slightly different

locations. With this option turned off, each file will be processed and then placed directly in the 'Correct Into Folder'. With this option turned on, the directory structure will be preserved and a new folder will be created inside the 'Correct Into Folder' that contains the files.

- (d) **Watched Folder path.** This is the folder that is watched for new entries.
- (e) **Temp Folder path.** LMB can create some temporary files whilst processing. This folder specifies where those temporary files go.
- (f) **Correct Into Folder path.** With auto-correct turned on, this folder specifies where corrected files are placed after processing.
- (g) **Log File Folder path.** If logging is turned on (see the reporting tab for information), then this is the folder where logs are stored.
- (h) **Detailed Log Folder path.** If detailed logs are turned on, then this is the folder where detailed logs are stored.

2. Multi-Channel File Handling.

- (a) **Corrected files suffix.** Type a suffix to be appended to corrected files here to make corrected files easier to identify if required.
- (b) **Multi-channel Routing.** This option is used to determine the expected order of channels in a multi-channel file (up to 5.1 surround).
- (c) **De-interleaved channels.** Tick this box to enable LMB to check for de-interleaved files using suffixes to identify individual channels. Custom suffixes can be entered (comma separated) in ITU channel order (L, R, C, LFE, Ls, Rs).

When using de-interleaved files, you must place all files within the same folder. You then add one or more of those files either by dragging and dropping the file onto the queue, or by selecting the file through the 'Add to queue' option in the menu, or by placing them in the watch folder. LMB will automatically pick up the additional files and process them together. Note that if only files with the L and R suffixes are present, the file will be treated as stereo, otherwise they will be treated as a 5.1 surround set and all 6 channels must be present.

- (d) **8 Channel Layout.** Use this option to define the channel layout within an 8-channel interleaved file. LMB will use this template to determine how to treat the tracks for analysis and processing.
- (e) **8 Channel Processing.** This option can be used to define which tracks to process in an 8-Channel interleaved file eg. If a 2 + 6 configuration is defined in the channel layout, but processing is only required on the surround component, choose the 5.1 option.

3. MXF File Handling.

If you have purchased the MXF expansion, then you will have additional options for how you process MXF files. Without the MXF expansion, MXF files are first converted to WAV files before being processed (in the same way as any other non-native file format is).

- (a) **Process unsupported files as WAV.** With this tick-box ticked, any MXF file that is not in a supported format will be converted to a WAV and processed in the same way that other non-native files are processed. If you un-tick this box then non-supported MXF files will trigger a failure.

LMB supports the OP-1a and OP-Atom operating patterns, and any audio in the file must be in either PCM or D10/AES3 format.

- (b) **Update Metadata.** Part of the MXF specification says that any program that modifies an MXF file should add some specific metadata to say that a modification had taken place. With this option turned on, LMB will add that metadata, with it turned off, it will not.

(c) **Enable AS-11 UK DPP checks.** Globally enable/disable AS-11 checks as required by the UK DPP. For specific tests, click on the 'Settings' button.

- i. **Skip line-up if present.** With this option turned on, LMB will ignore any line-up tone found at the beginning of the file. This is done by looking for the 'Line up start' metadata and then skipping forward to the 10-hour timecode mark in the file. Specifically, there is no checking for a line-up tone in the audio. If some audio needs to be skipped, this overrides the 'Ignore Head' setting.
- ii. **Reject if shim information is missing/ invalid.** This version of LMB has been written with the UK DPP shims for SD and HD content version 1.1. With this option turned on, if there is no shim information in the file, or if the version does not match, then the file will fail.
- iii. **Reject missing details.** With this option turned on, LMB will check for the required metadata. If any is missing then the file will fail. Note that the contents of the metadata are not validated. The list of items checked are:

Section	Item
AS-11 Core metadata	Series Title Program Title Episode Title Number Shim Name Shim Version Audio Track Layout Primary Audio Language
AS-11 UKDPP metadata	Production Number Synopsis Originator Copyright Year Secondary Audio Language Tertiary Audio Language Audio Loudness Standard

- iv. **Copy side-car file.** LMB will look in the same folder as the mxf file for a file with the same name but the xml extension. If this option is turned on and that file exists, it will copy the file to the 'Corrected Folder' upon completion. N.B. The file is not modified in any way.
- v. **Log all metadata to the log file.** With this option turned on, all discovered metadata is sent to both the log window and the log file.
- vi. **Process M&E tracks** The definition of what each channel contains is part of the 'Audio Track Layout' metadata extracted from the file. Some of those tracks may be marked as M&E in which case they do not normally need processing (as they will usually be loudness corrected once mixed with the dialog from another language). With this option turned on, they will be processed in addition to the rest of the audio.
- vii. **Default 4/16-channel layout** If the 'Audio Track Layout' metadata is missing from the file, you will need to tell LMB how to interpret the audio tracks that it is receiving. These options allow you to specify the layout based on the R123 standard.

		Audio Track Numbers															
EBU Reference code	Prog Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
R48:2a	Stereo	St. Final Mix LR		Silence													
R123:4b	Stereo with M&E	St. Final Mix LR		St. M&E LR													
R123:4c	Stereo with Audio Description	St. Final Mix LR		St. Aud Desc LR													
R123:16c	Stereo, 5.1 and M&E	St. Final Mix LR		St. M&E LR		5.1 Final Mix LRCLfeLsRs						5.1 M&E LRCLfeLsRs					
R123:16d	5.1 Two Languages	5.1 Lang 1 LRCLfeLsRs						Other		5.1 Lang 2 LRCLfeLsRs						Other	
R123:16f	Three Languages	Lang 1 LR		Not used		Lang 2 LR		Not used		Lang 3 LR		Not used		Other		Other	

2.5.3 Reporting

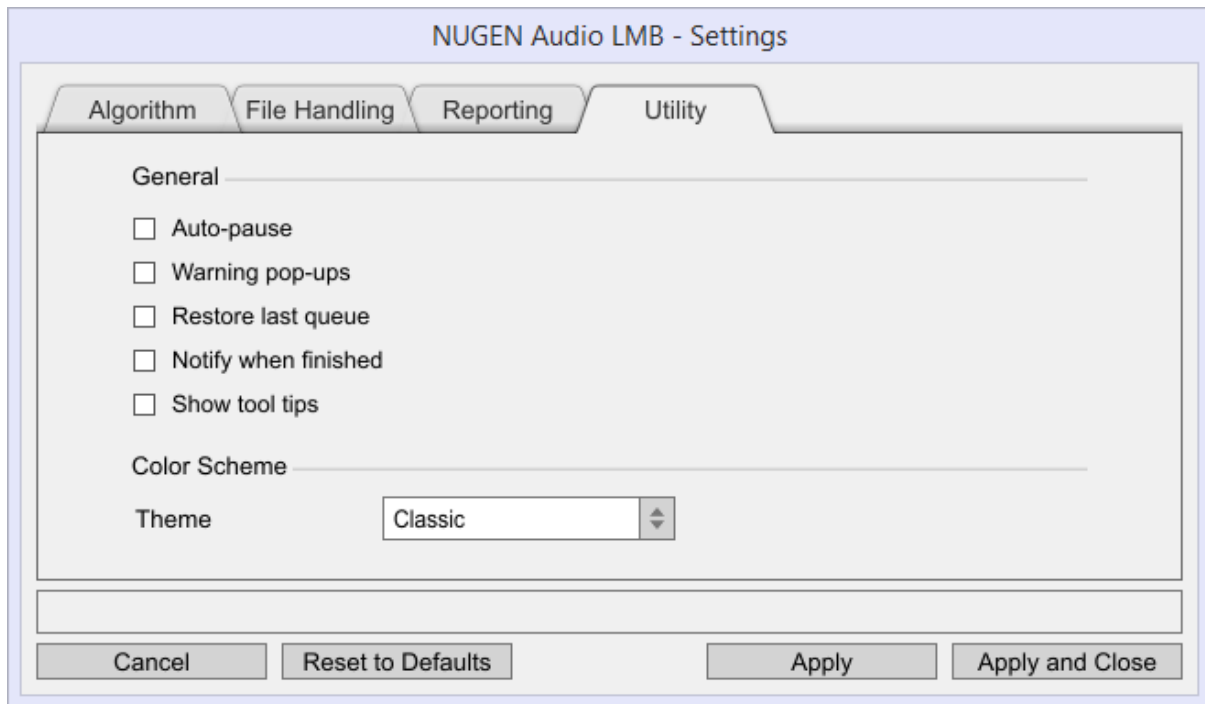
The reporting tab allows you to specify what information is logged out when files are processed.

1. **Logging** Logging can be enabled to store a history of what has happened to a file whilst it has been processed.
 - (a) **Daily Log Files.** With this option selected, LMB will generate log files where the name is the current date. This way, any work that is performed is grouped based on the day it was done.
 - (b) **Separate logs per file.** With this option selected, LMB will use the name of the file being processed as a base for the log file name.
 - (c) **Export Text Log.** Tick this box to generate log files in a human- readable format. This contains the same information that is displayed in the log window in LMB.
 - (d) **Export XML Log.** Tick this box to generate log files in XML format. This format

is more easily processed by external programs, but is still formatted in a way that can be easily read by a human being.

2. **Detailed File Analysis** Detailed information can be saved out on a per-file basis.
 - (a) **Export PNG Graph Image** With this box ticked, LMB will automatically save out a PNG of the graph for each file it processes.
 - (b) **Graph Folder** You can specify where the PNG files are saved. The filename used will be the same as the original file with PNG as the extension.
 - (c) **CSV File Analysis** Tick this box to export a detailed log of the various loudness parameters to a comma separated value (CSV) file. This file can be imported into graphing and analysis packages (eg. MS Excel) graphing and analysis packages (eg. MS Excel) for additional examination.
 - (d) **Log frequency** This parameter specifies the time between logs, in seconds. Note that making this number very small will slow down the processing of files and could generate very large files.

2.5.4 Utility



1. **Auto-pause** If Auto-pause is active, when first opened, LMB is paused (see 'Process Start/Pause' above). Additionally, if changes are made to the specifications settings, LMB will enter pause mode. If Auto-pause is in-active, LMB will respect the last setting of the Start/Pause control and await user up- date.
2. **Warning pop-ups** Disables/enables warning pop-ups. This function can be used to suppress 'file not found' notifications etc. to allow processing to continue in a fully automated environment, without requiring user interaction to continue.
3. **Restore last queue** Restores the queue that was in operation when LMB was last closed.
4. **Notify when finished** Enables a pop-up notification and alert sound upon completion of the current processing queue.
5. **Show tool tips** Enables tool-tips. Hover over any control in the settings panel to gain further information.

6. **Colour Scheme** Here you can select the colour scheme which changes the way that LMB looks.

3. Command-line interface

Using the command-line parameters it is possible to automate the use of LMB. If the XML log file option is selected, these output files can then be read by your Asset Management System allowing a fully automated loudness control system to be designed. You can find an example of a command line file in the "Examples" sub-folder of the LMB installation directory.

Available commands:

/?	or /h or /H	Get a help message
/S	file_path	Specify the settings file to use
/A	file_path	Add a file/folder for processing
/R		Remain open

Example:

Win:

```
"NUGEN Audio LMB.exe" /S "C:/my_settings.lmb" /A "C:/some_audio.wav"
```

OSX:

```
"./NUGEN LMB.app/Contents/MacOS/NUGEN LMB" /A "/Users/myname/Desktop/Audio/some_audio.wav"
```

Tip: By using the /S command a lot of the behaviour of LMB can be controlled through the use of the various options in the specified settings file.

4. File exclusion list

The file exclusion list is a list of file types (file extensions) that LMB will automatically ignore. This will speed operation and avoid LMB listing 'unsupported' files in the processing queue.

This list is contained within the file "ExcludeExtns.txt" which can be found in the LMB install directory, and can be manually edited to add/remove file exclusions to suit your operational requirements.

By default:

On OSX ExcludeExtns.txt is found in
Macintosh HD/Library/Application Support/NUGEN Audio/LMB

On Windows ExcludeExtns.txt is found in
C:\Program Files (x86)\NUGEN Audio\LMB

5. Reporting a problem

If you encounter a problem with any of NUGEN Audio's products, please let us know, to help us improve them.

Please email NUGEN Audio at support@nugenaudio.com giving a clear explanation of the problem. Please state how frequently you've experienced the problem. If there are any particular steps you need to go through to see the problem, please detail these. Also, please give details of the Plug-in Host you are using, including version number (e.g.- Pro Tools 10.0.1).

Please also state your operating system, and the rough specs for your machine (e.g.- CPU speed, RAM).

Please be patient with any problems you may experience, particularly with products at a beta stage of release. At NUGEN Audio we take problems with our software seriously, and will endeavour to correct them as quickly as possible.

6. Version History

- 1.6.3 Added support for keeping the directory structure of folders added to the watch folder.
Updated to the DynApt™ algorithm to reduce the possibility of getting stuck in a processing loop.
Re-adding a file to the watch folder after it has been auto-deleted will now cause it to be re-processed.
- 1.6.0 Added DynApt™ .
Added AS-11 UK DPP support.
Added colour schemes.
Reworked the settings interface to group options more effectively.
Temporary files are now deleted when no longer required.
Added automatic PNG export.
Fixed high-frequency logging on large files.
- 1.5.4 Fixed a rare issues that could cause processing to get stuck in a loop.
- 1.5.3 Native MXF processing added.
Fixed an issue that could cause an infinite loop when processing took more than one pass.
- 1.5.2 Dialog gated loudness metering option added.
Short-term sliding window parameter added.
- 1.5 Support for native handling of AIFF files.
Support for compressed WAV formats.
De-interleaved files supported in all formats.
Better handling of non-ASCII characters in file and folder names.
Fixed a number of multi-threading issues.
Added support for 8-channel source files in 2+6, 6+2 and 2+2+2+2 format.
- 1.4 Added log frequency parameter.
Added integrated program tolerance option.
Added support for de-interleaved files (stereo through 5.1)
- 1.3 Internal and hot fix builds.
- 1.2 Added ignore head of file parameter.
- 1.1.2 Corrected file suffix added.
Potential correction conflict scenario fixed.
- 1.1 ReplayGain option added.
- 1.0 Initial release.

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